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ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/G 4/2  
193048 GSRS, MISSILE NUMBER 1081, ROUND NUMBER V-93, 7 DECEMBER--ETC(U)  
DEC 79

UNCLASSIFIED

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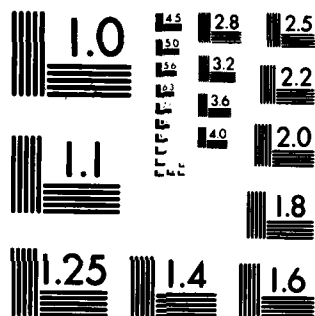
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MICROCOPY RESOLUTION TEST CHART  
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19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of the 19304B GSRS, Missile Number 1081, Round Number V-93 are presented in tabular form.		

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## INTRODUCTION

19304B GSRS, Missile Number 1081, Round Number Y-93, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1530 MST on 07 December 1979. The scheduled launch time was 1430 MST.

## DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

### 1. Observations

#### a. Surface

(1) Standard surface observations to include pressure, temperature ( $^{\circ}\text{C}$ ), relative humidity, dew point ( $^{\circ}\text{C}$ ), density ( $\text{gm}/\text{m}^3$ ), Wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

#### b. Upper Air

(1) Low level wind data were obtained from RPTS T-9 pilot observation at:

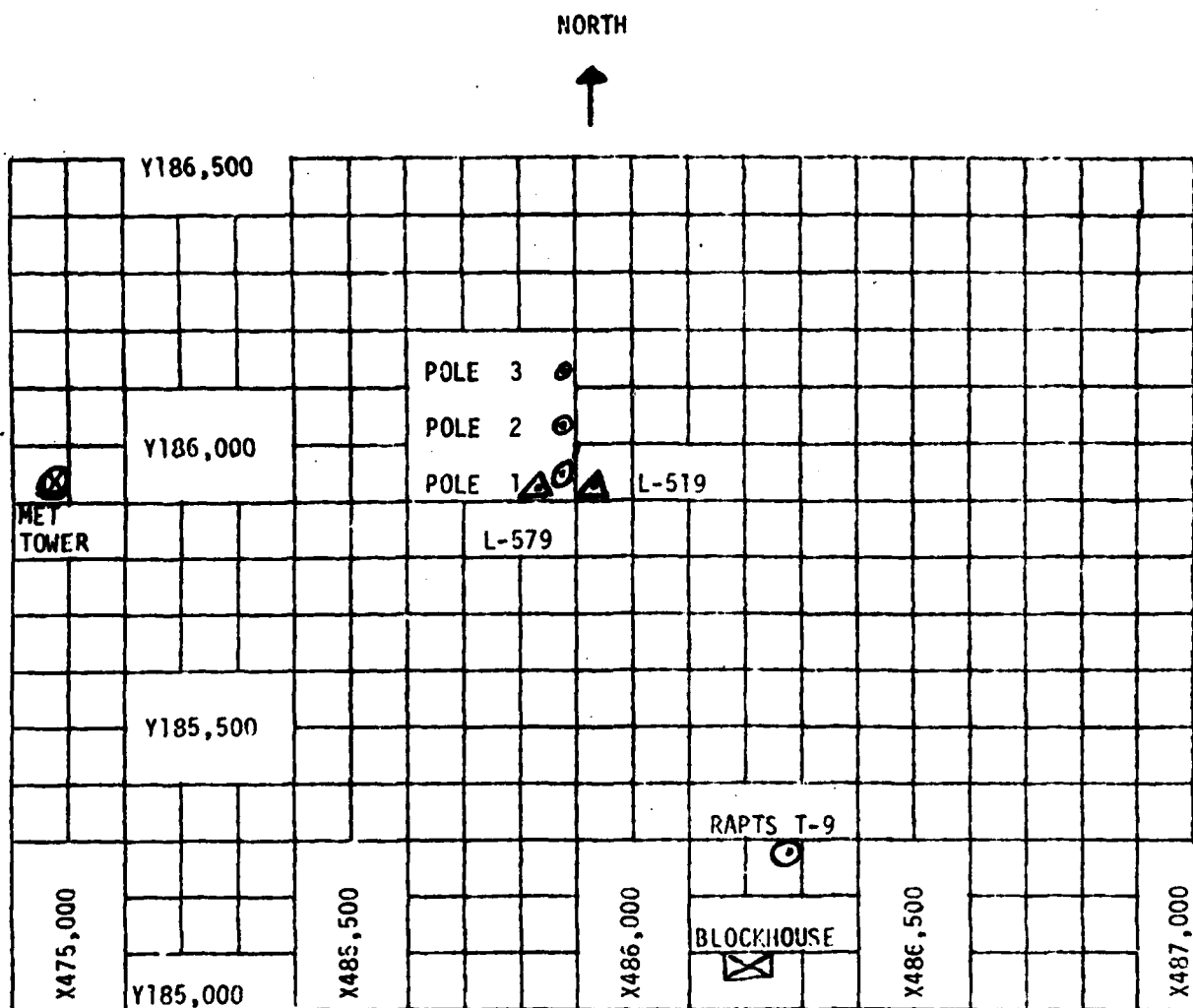
## SITE AND ALTITUDE

LC-33 2Km  
Nick 2Km

(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to 35,000 feet in 500-foot increments.

## SITE AND TIME

WSD 1550 MST



1. MET TOWER - 4 Bendix Model T-20 Anemometers at 12 ft, 62 ft, 102 ft, and 202 ft with E/A recorders.
2. POLE ANEMOMETER - Bendix Model T-120 with E/A recorders.
  - (a) Pole #1 - 38.7 ft.
  - (b) Pole #2 - 53.0 ft.
  - (c) Pole #3 - 83.6 ft.
3. RAPTS T-9 Radar Automatic Pilot-Balloon Tracking System T-9 Radar.



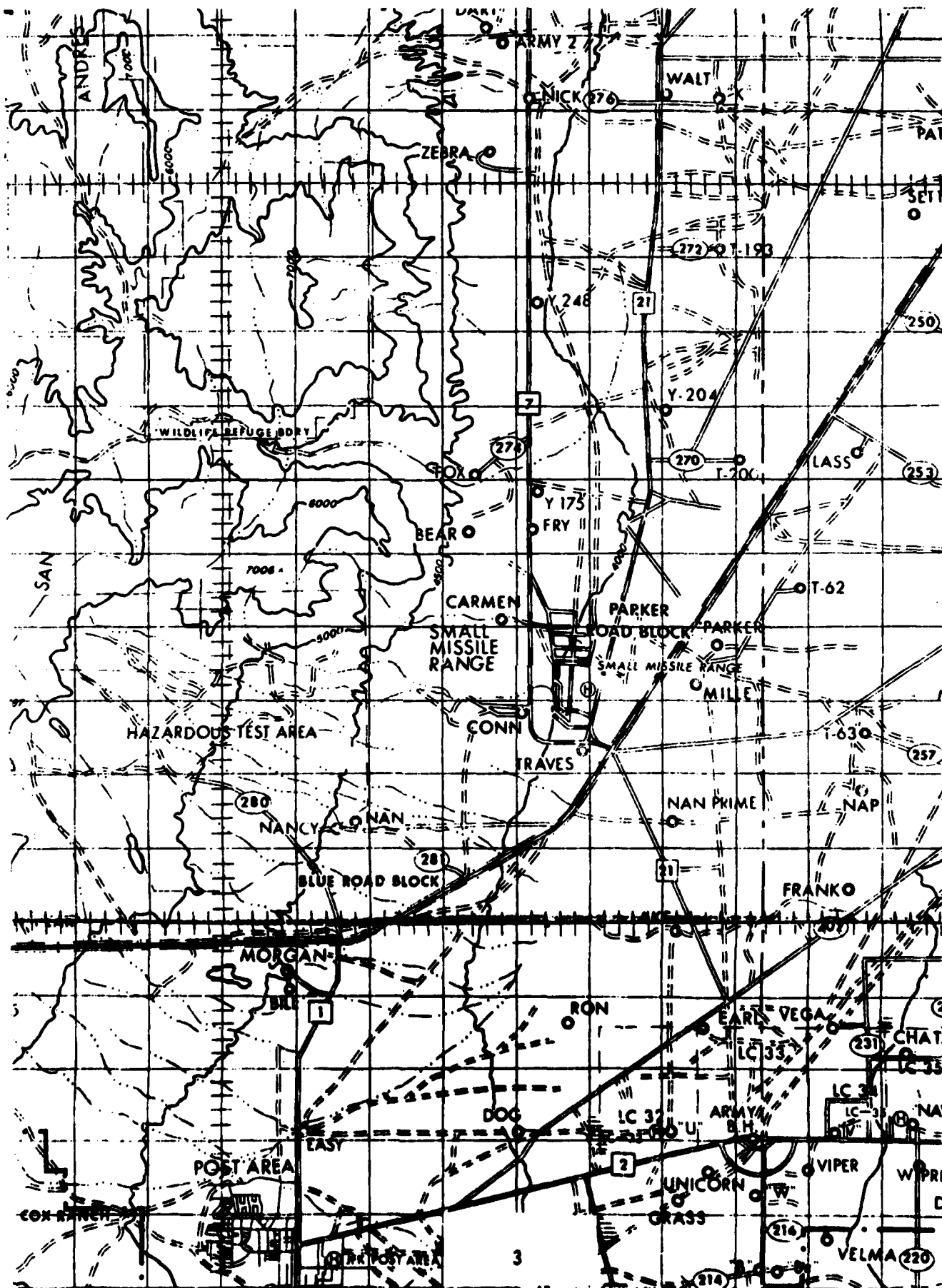


TABLE 1. Surface Observations taken at 1530 MST,  
07 December 1979, at LC-33, 19304B GSRs,  
Missile Number 1081, Round Number V-93.

ELEVATION	3977.30	FT/MSL
PRESSURE	879.4	MBS
TEMPERATURE	17.3	°C
RELATIVE HUMIDITY	22	%
DEW POINT	-4.7	°C
DENSITY	1051	GM/M <sup>3</sup>
WIND SPEED	02	KTS
WIND DIRECTION	142	DEGREES
CLOUD COVER	CLEAR	

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1 X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
-30	120	04	-30	123	02	-30	138	03
-20	120	04	-20	120	03	-20	126	04
-10	120	04	-10	118	04	-10	127	04
0.0	120	04	0.0	116	04	0.0	126	04
+10	MISG	02	+10	MISG	04	+10	MISG	03

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
-30	132	03	-30	124	03
-20	132	03	-20	141	03
-10	144	02	-10	141	02
0.0	142	02	0.0	141	03
+10	141	02	+10	135	02

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
-30	117	03	-30	126	06
-20	116	03	-20	126	05
-10	116	02	-10	126	06
0.0	116	02	0.0	MISG	05
+10	114	03	+10	118	06

## PILOT BALLOON MEASURED WIND DATA

TABLE 4

RELEASED FROM LC-33

DATE 07 December 1979

TIME 1530 MST

## TRACKER

COORDINATES (WSTM)

**X= 486,037.24**

$$Y = 182,350.16$$

**11= 3977.30**

NOTE: WIND DIRECTIONS ARE REFERENCED TO TRUE NORTH.

HEIGHTS ARE METERS AGL XX OR FEET AGL       .

[illegible][illegible][illegible]

## PILOT BALLOON MEASURED WIND DATA

TABLE 5

RELEASED FROM NICK

DATE 07 December 1979

**TIME 1530 MST**

## TRACKER

COORDINATES (WSTM)

X = 470.734.56

Y = 255,775.64

4126 57

NOTE: WIND DIRECTIONS ARE REFERENCED TO TRUE NORTH.

HEIGHTS ARE METERS AGL XX OR FEET AGL .

[illegible][illegible][illegible]

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

SIGNIFICANT LEVEL DATA  
3410020512  
WHITE SANDS

TABLE 6

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE		REL. HUM. PERCENT
	AIR DEGREES	DEWPOINT CENTIGRADE	
880.2	17.2	-4.7	22.0
850.0	14.5	-7.5	21.0
772.8	8.5	-10.9	24.0
740.8	7.7	-9.6	28.0
700.0	4.6	-11.0	31.0
622.8	-0.2	-14.9	32.0
604.2	-0.9	-16.7	29.0
500.0	-10.5	-30.8	17.0
440.6	-17.6	-37.3	16.0
400.0	-24.2	-42.2	17.0
342.0	-34.8	-50.6	18.0
312.8	-40.7		
300.0	-43.0		
285.2	-44.6		
264.8	-48.1		
250.0	-49.0		

STATION ALTITUDE 3989.00 FEET MSL  
7 DEC. 79  
ASCENSION NO. 512

STATION ALTITUDE 3989.00 FEET MSL  
7 DEC. 79 1550 HRS MST  
ASCENSION NO. 512

UPPER AIR DATA  
3410020512  
WHITE SANDS

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

TABLE 7

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE				DIRECTION DEGREES (TN)	SPEED KNOTS	
3989.0	880.2	17.2	-4.7	22.0	1054.1	664.4	150.0	4.1	1.000254
4000.0	879.9	17.2	-4.7	22.0	1053.8	664.4	150.4	4.1	1.000254
4500.0	864.2	15.8	-6.2	21.5	1040.2	662.8	167.0	4.6	1.000249
5000.0	846.8	14.4	-7.6	21.0	1026.7	661.1	179.4	5.5	1.000245
5500.0	833.5	13.3	-8.2	21.6	1012.2	659.8	188.2	6.5	1.000241
6000.0	818.4	12.1	-8.8	22.2	998.0	658.5	197.0	6.4	1.000237
6500.0	803.6	11.0	-9.5	22.8	984.0	657.1	207.0	6.2	1.000233
7000.0	789.1	9.8	-10.1	23.3	970.2	655.8	229.6	3.4	1.000230
7500.0	774.8	8.7	-10.8	23.9	956.6	654.4	295.0	2.6	1.000226
8000.0	760.7	8.2	-10.4	25.5	940.6	653.9	300.2	3.0	1.000223
8500.0	746.8	7.9	-9.8	27.2	924.5	653.5	298.1	3.5	1.000220
9000.0	733.1	7.1	-9.9	28.6	909.8	652.7	281.6	5.0	1.000217
9500.0	719.6	6.1	-10.3	29.5	896.4	651.5	271.3	6.3	1.000213
10000.0	706.4	5.1	-10.8	30.5	883.1	650.3	261.8	7.3	1.000210
10500.0	693.5	4.2	-11.4	31.1	869.5	649.3	250.9	8.6	1.000206
11000.0	680.5	3.4	-12.0	31.2	855.7	648.3	241.0	10.1	1.000203
11500.0	667.6	2.7	-12.6	31.4	842.2	647.4	234.9	11.0	1.000199
12000.0	655.2	1.9	-13.2	31.6	828.8	646.5	230.0	11.8	1.000196
12500.0	642.9	1.1	-13.8	31.7	815.7	645.6	231.1	11.0	1.000192
13000.0	630.9	.3	-14.4	31.9	802.7	644.6	233.3	10.3	1.000189
13500.0	619.1	-0.3	-15.2	31.4	789.7	643.8	245.5	9.9	1.000185
14000.0	607.5	-0.9	-16.3	29.5	776.1	643.3	257.4	9.9	1.000182
14500.0	595.8	-1.6	-17.6	28.1	763.7	642.3	263.4	10.4	1.000178
15000.0	584.4	-2.6	-19.0	26.9	751.8	641.1	266.6	11.3	1.000174
15500.0	573.2	-3.6	-20.4	25.7	740.1	639.9	260.0	14.2	1.000171
16000.0	562.2	-4.6	-21.8	24.4	728.6	638.7	255.3	17.0	1.000168
16500.0	551.4	-5.5	-23.2	23.2	717.3	637.5	251.0	19.5	1.000165
17000.0	540.8	-6.5	-24.7	22.0	706.1	636.3	248.3	21.2	1.000162
17500.0	530.4	-7.5	-26.1	20.7	695.2	635.1	247.4	21.1	1.000159
18000.0	520.2	-8.5	-27.6	19.5	684.4	633.9	247.1	20.9	1.000156
18500.0	510.2	-9.5	-29.1	18.3	673.6	632.7	247.7	20.8	1.000153
19000.0	500.4	-10.5	-30.7	17.0	663.4	631.5	246.1	21.1	1.000150
19500.0	490.5	-11.6	-31.7	16.8	653.0	630.2	243.0	21.7	1.000148
20000.0	480.8	-12.7	-32.8	16.7	642.8	628.6	240.7	21.3	1.000145
20500.0	471.2	-13.8	-33.8	16.5	632.8	627.4	238.4	20.6	1.000143
21000.0	461.9	-15.0	-34.8	16.4	623.0	626.1	239.4	20.3	1.000141
21500.0	452.7	-16.1	-35.9	16.2	613.3	624.7	240.5	20.2	1.000138
22000.0	443.7	-17.2	-36.9	16.1	603.8	623.3	240.1	21.4	1.000136
22500.0	434.8	-18.5	-37.9	16.1	594.7	621.7	239.7	22.2	1.000134
23000.0	425.9	-19.9	-39.0	16.3	585.8	620.0	239.5	21.3	1.000132

UPPER AIR DATA  
3410020512  
WHITE SANDS

STATION ALTITUDE 3999.00 FEET MSL  
7 DEC. 79 1500 HRS MST  
ASCENSION: NO. 512

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LONG DEG

TABLE 7 (CONT)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CM <sup>3</sup>	SPEED OF SOUND METER	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
23500.0	417.3	-21.3	16.6	577.1	618.3	239.6	20.3	1.000130
24000.0	406.8	-22.7	15.8	568.5	616.6	241.0	19.2	1.000128
24500.0	400.5	-24.1	17.0	560.1	614.8	243.1	18.1	1.000126
25000.0	392.0	-25.6	17.1	551.5	613.0	246.7	17.2	1.000124
25500.0	383.8	-27.0	17.3	543.1	611.2	250.8	16.3	1.000122
26000.0	375.7	-28.4	17.4	534.8	609.5	255.5	15.5	1.000120
26500.0	367.8	-29.9	17.5	526.6	607.7	258.0	14.7	1.000118
27000.0	360.0	-31.3	17.7	518.6	605.9	259.8	13.6	1.000116
27500.0	352.5	-32.8	17.8	510.7	604.0	257.0	12.8	1.000114
28000.0	345.0	-34.2	17.9	503.0	602.2	248.7	12.4	1.000112
28500.0	337.6	-35.7	15.4**	495.2	600.4	240.2	12.6	1.000111
29000.0	330.3	-37.1	11.0**	487.4	598.5	232.6	13.6	1.000109
29500.0	323.1	-38.6	6.5**	479.8	596.7	228.6	14.5	1.000107
30000.0	316.0	-40.0	2.1**	472.2	594.8	229.8	15.2	1.000105
30500.0	309.1	-41.4		464.5	593.1	229.0	16.0	1.000103
31000.0	302.2	-42.6		456.7	591.5	229.3	17.3	1.000102
31500.0	295.5	-43.5		448.2	590.4	228.1	18.8	1.000100
32000.0	289.9	-44.2		439.5	589.5	223.9	21.0	1.000098
32500.0	282.4	-45.1		431.3	588.4	221.3	23.0	1.000096
33000.0	276.0	-46.1		423.6	587.0	220.6	24.4	1.000094
33500.0	269.8	-47.2		416.0	585.6			1.000093
34000.0	263.7	-48.2		408.3	584.3			1.000091
34500.0	257.7	-48.5		399.6	583.9			1.000089
35000.0	251.8	-48.9		391.1	583.4			1.000087

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.



STATION ALTITUDE 3989.00 FEET MSL  
7 DEC. 79  
ASCENSION NO. 512

MANDATORY LEVELS  
3410020512  
WHITE SANDS

GEODETTIC COORDINATES  
32.40043 LAT DEG  
106.37033 LON DEG

TABLE 8

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE	PERCENT	DIRECTION DEGREES(TN)	SPEED KNOTS	
850.0	4958.	14.5	-7.5	21.	178.5	5.4	
800.0	6625.	10.7	-9.6	23.	210.4	5.5	
750.0	8377.	7.9	-10.0	27.	303.5	5.2	
700.0	10233.	4.6	-11.0	31.	257.5	7.9	
650.0	12203.	1.6	-13.5	32.	230.4	11.5	
600.0	14307.	-1.3	-17.1	29.	261.2	10.2	
550.0	16564.	-5.7	-23.4	23.	250.4	19.9	
500.0	18903.	-10.5	-30.0	17.	246.0	21.1	
450.0	21623.	-16.4	-36.2	16.	240.4	20.5	
400.0	24487.	-24.2	-42.2	17.	243.2	18.1	
350.0	27524.	-33.2	-49.4	18.	254.4	12.7	
300.0	31103.	-43.0			229.4	17.6	
250.0	35077.	-49.0					